CLAIMS

1   1. A method of distributing traffic among channels in a packet data system hav-

2   ing at least two channels, the method comprising:

3   for each channel, continuously toggling a capacity flag between an as-

4   serted state and an unasserted state while the channel is available; and

5   for each channel, continuously asserting the capacity flag while the chan-

6   nel is unavailable;

7   wherein, at any particular time, capacity flags are in the asserted state for

8   all of a first group of available channels, while capacity flags are in the unas-

9   serted state for all of at least a second group of available channels, so that traffic

10   is distributed among the at least two channels.

1   2. The method of claim 1 wherein the capacity flag for each available channel is

2   toggled each period of a timer and further wherein capacity flags for the first group and

3   the second group are in different states during the same period of the timer.

1   3. The method of claim 1 wherein, for each available channel, the capacity flag is

2   toggled at random while the actual traffic load is less than the maximum load.

1   4. A method of setting capacity flags to enable the distribution of traffic among

2   channels in a packet data system having at least two channels, the method for each

3   channel comprising:

4   establishing a toggle flag for each channel that changes state according to

5   a timer so that an any particular time, toggle flags are in the asserted state for all

6   of a first group of the at least two channels, while toggle flags are in the unas-

7   serted state for all of at least a second group of the least two channels;

8   asserting a maximum load flag if an actual traffic load is greater than or

9   equal to a maximum load; and

10   setting a capacity flag by ORing the toggle flag and the maximum load

11   flag, so that traffic is distributed among channels for which the actual traffic load

12   is less than the maximum load.

1   5. The method of claim 5 wherein the toggle flag changes state upon every pe-

2   riod of the timer.

1   6. A computer program product for enabling a mobile data base station to dis-

2   tribute traffic among channels in a cellular digital packet data system having at least two

3   channels, the computer program product including a computer program comprising:

4   instructions for continuously toggling a capacity flag for each channel be-

5   tween an asserted state and an unasserted while a channel is available; and

6   instructions for continuously asserting the capacity flag for each channel

7   while the channel is not available;

8   wherein, at any particular time, capacity flags are in the asserted state for

9   all of a first group of available channels, while capacity flags are in the unas-

10   serted state for all of at least a second group of available channels, so that traffic

11   is distributed among the at least two channels.

1   7. The computer program product of claim 6 wherein the instructions for toggling

2   the capacity flag toggle at each period of a timer and further wherein capacity flags for

3   the first group and the second group are in different states during the same period of the

4   timer.

1   8. The computer program product of claim 6 wherein the instructions for toggling

2   the capacity flag toggle the capacity flag at random.

1   9. Apparatus for distributing traffic among channels in a packet data system in-

2   cluding at least two channels, the apparatus comprising:

3   means for continuously toggling a capacity flag for each channel between

4   an asserted state and an unasserted state while the channel is available; and

5   means for continuously asserting the capacity flag while the channel is un-

6   available;

7   wherein, at any particular time, capacity flags are in the asserted state for

8   all of a first group of available channels, while capacity flags are in the unas-

9   serted state for all of at least a second group of available channels, so that traffic

10   is distributed among the at least two channels.

1   10. Apparatus for setting capacity flags in a packet data system for enabling the

2   distribution traffic among at least two channels, the apparatus comprising:

3   a toggle flag generator for generating a toggle flag for each channel that

4   change state according to a timer so that an any particular time, toggle flags are

5   in the asserted state for all of a first group of the at least two channels, while tog-

6   gle flags are in the unasserted state for all of at least a second group of the least

7   two channels;

8   a maximum load flag generator that asserts a maximum load flag if an ac-

9   tual traffic load is greater than or equal to a maximum load; and

10   an OR function for each channel including two inputs and a capacity flag

11   output, wherein one of the two inputs of the OR function is connected to the tog-

12   gle flag generator and another of the two inputs of the OR function is connected

13   to the maximum load flag generator, so that the output is the logical OR of a tog-

14   gle flag and the max load flag.

1   11. The apparatus of claim 10 wherein the toggle flag changes state upon every

2   period of the timer.

1   12. A mobile data base station comprising:

2   at least one modem transceiver; and

3   a programmable control block operably connected to the modem trans-

4   ceiver, the control block being operable to distribute traffic among channels by

5   continuously toggling a capacity flag between an asserted state and an unas-

6   serted state while a channel is available;

7   wherein, at any particular time, capacity flags are in the asserted state for

8   all of a first group of available channels, while capacity flags are in the unas-

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9 serted state for all of at least a second group of available channels, so that traffic

10 is distributed among the channels.

1 13. The mobile data base station of claim 12 wherein the programmable control

2 block is further operable to continuously assert the capacity flag while the channel is un-

3 available because an actual traffic load on the channel is greater than or equal to a

4 maximum load.

1 14. The mobile data base station of claim 12 wherein the capacity flag for each

2 available channel is toggled each period of a timer and further wherein capacity flags for

3 the first group and the second group are in different states during the same period of the

4 timer.

1 15. The mobile data base station of claim 13 wherein the capacity flag for each

2 available channel is toggled each period of a timer and further wherein capacity flags for

3 the first group and the second group are in different states during the same period of the

4 timer.

1 16. A mobile data base station comprising:

2   at least one modem transceiver; and

3   a programmable control block connected to the modem transceiver, the

4   control block being enabled by a computer program to distribute traffic among

5   channels by:

6   establishing a toggle flag for each channel that changes state ac-

7   cording to a timer so that an any particular time, toggle flags are in the as-

8   serted state for all of a first group of the at least two channels, while toggle

9   flags are in the unasserted state for all of at least a second group of the

10   least two channels;

11   asserting a maximum load flag if an actual traffic load is greater

12   than or equal to a maximum load; and

13   setting a capacity flag by ORing the toggle flag and the maximum

14   load flag, so that traffic is distributed among channels for which the actual

15   traffic load is less than the maximum load.

1   17.   The mobile data base station of claim 16 wherein the toggle flag changes

2   state upon every period of the timer.

1   18. Apparatus for distributing traffic among channels in a packet data system in-

2   cluding at least two channels, the apparatus comprising:

3   at least one modem transceiver;

4   a toggle flag generator for generating a toggle flag for each channel that

5   change state according to a timer so that an any particular time, toggle flags are

6   in the asserted state for all of a first group of the at least two channels, while tog-

7 gle flags are in the unasserted state for all of at least a second group of the least

8 two channels;

9   a maximum load flag generator that asserts a maximum load flag if an ac-

10 tual traffic load is greater than or equal to a maximum load; and

11   an OR function for each channel including two inputs and a capacity flag

12 output operatively coupled to the modem transceiver, wherein one of the two in-

13 puts of the OR function is connected to the toggle flag generator and another of

14 the two inputs of the OR function is connected to the maximum load flag genera-

15 tor, so that the capacity flag output is the logical OR of a toggle flag and the max

16 load flag.

1 19. The apparatus of claim 18 wherein the toggle flag changes state upon every

2 period of the timer.

1 20. A protocol system for a packet data network, the protocol system comprising

2 a plurality of layers further comprising:

3   a physical layer;

4   a network layer; and

5   a data link layer disposed between the physical layer and the network

6 layer, the data link layer further comprising a data link protocol sublayer including

7 a resource management entity operable to cause the distribution of traffic among

8 channels by continuously toggling a capacity flag for a channel between an as-

9 serted state and an unasserted state while the channel is available;

10   wherein, at any particular time, capacity flags are in the asserted state for

11   all of a first group of available channels, while capacity flags are in the unas-

12   serted state for all of at least a second group of available channels.

1   21. The protocol system of claim 20 wherein the network layer further comprises

2 a subnetwork dependant convergence protocol sublayer.

1   22. The protocol system of claim 20 wherein the plurality of layers operates sub-

2 stantially in accordance with a cellular digital packet data (CDPD) standard.

1   23. The protocol system of claim 21 wherein the plurality of layers operates sub-

2 stantially in accordance with a cellular digital packet data (CDPD) standard.